REMARKS

The above-identified application is United States application serial number 10/056,145 filed on January 22, 2002. Claims 1-22 are pending in the application. Claims 1-22 are rejected under 35 U.S.C. § 102(e) as being anticipated by Holenstein et al (USP Application 2002/0133507 A1) (hereafter Holenstein). Applicant respectfully traverses this rejection.

Claim Objections

Claim 18 is objected to because in line 20, page 31, the acronym name "TMF" is not defined in the claim. In response, Applicant has amended Claim 18 to include the phrase "Transaction Management Facility", which is represented by the acronym TMF.

Claim Rejections - 35 U.S.C. § 102

Claim 1 sets forth "committing the first transaction before initiating a lockstep transaction that updates a second file in the primary computer system". This feature is supported by at least page 12 lines 20-29 and page 13 lines 11-25 of the specification. Holenstein, in contrast, does not commit the transaction until after the originating node knows that all of the other nodes in the system have locked the appropriate rows, performed the transaction, and are ready to commit the transaction. (Holenstein ¶ 0102 and ¶ 0105). Claim 1 is thus distinguishable from Holenstein for at least these reasons.

Claims 2-4 depend from Claim 1 and include features that further distinguish them from the cited reference. In particular, Claim 2 sets forth "the lockstep transaction is initiated by a procedure call made immediately upon completion of the first transaction". In contrast, Holenstein teaches pausing the transaction before initiating the ready to commit process, and completing the transaction only when all nodes are ready to commit the transaction. (Holenstein ¶ 0123).

Claim 4 recites "after the second lockstep transaction is initiated, ignoring said confirmation that the audit records representing the updates to the first file by the first transaction and the updates to the second file by the lockstep transaction have been durably stored by the backup computer system". In contrast, Holenstein does not teach or suggest ignoring said confirmation. Holenstein teaches pausing the transaction before initiating the

11 of 15 **10/056,145**

PAGE 13/17 * RCVD AT 8/9/2004 6:28:37 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/0 * DNIS:8729306 * CSID:9492510260 * DURATION (mm-ss):05-32

ready to commit process, and completing the transaction only when all nodes are ready to commit the transaction. (Holenstein ¶ 0123). Holenstein must check all confirmations because the primary processor only commits a transaction when all nodes are ready to commit the transaction, and therefore never ignores the confirmation.

Allowance of Claims 1-4 is respectfully requested.

Claim 5 recites

"wherein the backup computer system includes mechanism for safely storing the lockstep audit record and audit records preceding the lockstep audit record immediately upon receiving the lockstep audit record, the backup computer system further including mechanisms for transmitting a safe auditrail position of the Lockstep audit record to the primary computer system after the Lockstep audit record is safely stored;

receiving the safe auditrail position from the backup computer system;

checking whether the safe auditrail position corresponds to a lockstep transaction that is currently active".

In contrast, Holenstein does not disclose or suggest these features in Claim 5. The portion of Holenstein cited (¶ 0134) as disclosing these features teaches stopping the transaction if the RTS tokens do not properly and/or timely return from the other nodes. Holenstein does not disclose or suggest "transmitting a safe auditrail position of the Lockstep audit record", or "checking whether the safe auditrail position corresponds to a lockstep transaction that is currently active". Claim 5 is thus distinguishable from Holenstein for at least these reasons.

Claims 6-10 depend from Claim 5 and include features that further distinguish them from the cited reference. In particular, Claim 6 sets forth

"during the reading step and upon encountering the first lockstep audit record, extracting an audit trail position and a transaction identifier from the first lockstep audit record;

storing the extracted audit trail position at a second location of the pre-defined data structure; and

storing the extracted transaction identifier at a third location of the pre-defined data structure".

The audit trail position feature is supported on at least page 6 lines 11-17 and 26-32, page 10 lines 12-15, page 12 lines 6-12, page 17 lines 1-30, page 19 lines 1-25, page 20 lines 34-35,

and page 21 lines 1-4 and 10-20 of the specification. There is no mention or suggestion of an audit trail position of a lockstep audit record or any of these other features of Claim 6 in Holenstein. Although paragraph 0134 in Holenstein is cited as disclosing these features, paragraph 0134 actually pertains to stopping the transaction if the RTS tokens do not properly and/or timely return from the other nodes. The tokens in Holenstein allow earlier detection of collision situations during replication, and to know whether certain parts of lengthy transactions have been safe-stored at all nodes. Such teachings do not pertain to the audit trail position of a lockstep audit record. Claim 6 is allowable over Holenstein for at least these reasons.

Allowance of Claims 5-10 is respectfully requested.

Claim 11 recites:

"storing an audit trail position of the first update in the pre-defined data structure upon encountering the first lockstep audit record during the extracting step;

storing the first unique transaction identifier in the pre-defined data structure as a lockstep audit transaction identifier (LockStep_Audit_TID) upon encountering the first lockstep audit record during the extracting step;

... wherein the backup computer system is configured to transmit to the primary computer system a safe position indicating the audit trail position of durably stored audit records upon receiving the lock-step indicator;

comparing the safe position returned by the backup computer system to the audit trail position stored in the pre-defined data structure; and

indicating completion of the lockstep replication procedure when the safe position is equal to or higher than the audit trail position stored in the pre-defined data structure, and when the lockstep gateway transaction identifier (LockStep_Gateway_TID) matches the lockstep audit transaction identifier (LockStep_Audit_TID)."

There is no mention or suggestion of an audit trail position of a lockstep audit record or any of these other features of Claim 11 in Holenstein. Although paragraph 0134 in Holenstein is cited as disclosing these features, paragraph 0134 actually pertains to stopping the transaction if the RTS tokens do not properly and/or timely return from the other nodes. The tokens in Holenstein allow earlier detection of collision situations during replication, and to know whether certain parts of lengthy transactions have been safe-stored at all nodes. Such teachings do not pertain to the audit trail position of a lockstep audit record. Claim 11 is allowable over Holenstein for at least these reasons.

Additionally, Holenstein paragraphs 0221 and 0266 were cited as teaching features in

Claim 11. Applicant would like to point out, however, that the filing date of Holenstein US2002/0133507 is March 29, 2002, which is after the filing date of January 22, 2002 of the present application. Holenstein US2002/0133507 is a continuation-in-part of U.S. Patent No. 6,662,196, which was filed on March 16, 2001. Accordingly, Holenstein 6,662,196 can be used as a reference against the present application along with paragraphs 0020 through 0143 of Holenstein US2002/0133507, which disclose substantially the same material. Paragraphs 0144 through 0342 of Holenstein US2002/0133507 were not filed until March 29, 2002, however, and therefore do not constitute prior art with respect to the present application.

Claims 12-14 depend from Claim 11 and include features that further distinguish them from the cited reference. Allowance of Claims 11-14 is respectfully requested.

Claim 15 sets forth:

"wherein the backup computer system is configured to transmit to the
    extractor a safe position indicating the audit trail position of durably
    stored audit records upon receiving the lock-step indicator;
the extractor configured to compare the safe position returned by the backup
    computer system to the audit trail position stored in the pre-defined
    data structure;
the extractor configured to communicate to the gateway a status of the
    lockstep replication procedure when the safe position is equal to or
    higher than the audit trail position stored in the pre-defined data
    structure".

Claim 18 sets forth:

"the extractor configured to store an audit trail position of the first update in
    the pre-defined data structure upon encountering the first lockstep
    audit record in the audit trail;
the extractor configured to compare the safe position returned by the backup
    computer system to the audit trail position stored in the pre-defined
    data structure;
the extractor configured to communicate to the gateway a status of the
    lockstep replication procedure when the safe position is equal to or
    higher than the audit trail position stored in the pre-defined data
    structure, and when the lockstep gateway transaction identifier
    (LockStep_Gateway_TID) matches the lockstep audit transaction
    identifier (LockStep_Audit_TID)".

There is no mention or suggestion of an audit trail position of a lockstep audit record or any of these other features of Claims 15 and 18 in Holenstein. Although paragraph 0134 in Holenstein is cited as disclosing these features, paragraph 0134 pertains to stopping the transaction if the RTS tokens do not properly and/or timely return from the other nodes. The

tokens in Holenstein allow earlier detection of collision situations during replication, and to know whether certain parts of lengthy transactions have been safe-stored at all nodes. Such teachings do not pertain to the audit trail position of a lockstep audit record. Claims 15 and 18 are allowable over Holenstein for at least these reasons.
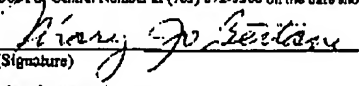
Claims 16-17 and 19-22 depend from Claims 15 and 18, respectively, and include features that further distinguish them from the cited reference. Allowance of Claims 15-22 is respectfully requested.
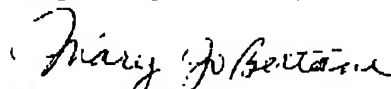
New Claims

Claims 23 and 24 have been added to capture subject matter originally disclosed at least on page 7, lines 1-8 of the specification. Claims 23 and 24 depend from Claim 18 and include features that further distinguish them from the cited reference. Allowance of Claims 23-24 is respectfully requested.

CONCLUSION

In view of the amendments and remarks set forth herein, Applicant believes Claims 1-24 are in form for allowance and a notice to that effect is solicited. In the event it would facilitate prosecution of this application, the Examiner is invited to telephone the undersigned at (949) 251-0250.

I hereby certify that this correspondence is being facsimile transmitted to the USPTO, Central Number at (703) 872-9306 on the date shown below:

_____
(Signature)

Mary Jo Bertani
(Printed Name of Person Signing Certificate)

August 9, 2004
(Date)

Respectfully submitted,

Mary Jo Bertani
Attorney for Applicant(s)
Reg. No. 42,321

15 of 15   10/056,145

PAGE 17/17 * RCVD AT 8/9/2004 6:28:37 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/0 * DNIS:8729306 * CSID:9492510260 * DURATION (mm-ss):05-32